



# Search Report

EIC 2100

STIC Database Tracking Number: 235610

To: MICHAEL PHAM  
Location: RND-3D18  
Art Unit: 2167  
Tuesday, August 28, 2007

Case Serial Number: 10/660166

From: TERRI BEALE  
Location: EIC2100  
RND-4B28 / RND-4B31  
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## Search Notes

Attached please find the results of your prior art search. I have highlighted items of interest. Please feel free to contact me if you have additional questions or concerns. Thank you and have a great day.

*Terri Beale*



# STIC EIC 2100

## Search Request Form

235610

Today's Date:

8/28/07

What date would you like to use to limit the search?

Priority Date: 9/11/2003 Other:

Name Michael Pham

Format for Search Results (Circle One):

PAPER  DISK  EMAIL

Where have you searched so far?

USP DWPI EPO JPO ACM IBM TDB

IEEE INSPEC SPI Other EAST-All DBs

AU 2167 Examiner # 81563

RAND Room # 3D18 Phone 23924

Serial # 10660166

Is this a "Fast & Focused" Search Request? (Circle One)  YES  NO

A "Fast & Focused" Search is completed in 2-3 hours (maximum). The search must be on a very specific topic and meet certain criteria. The criteria are posted in EIC2100 and on the EIC2100 NPL Web Page at <http://ptoweb/patents/stic/stic-tc2100.htm>.

What is the topic, novelty, motivation, utility, or other specific details defining the desired focus of this search? Please include the concepts, synonyms, keywords, acronyms, definitions, strategies, and anything else that helps to describe the topic. Please attach a copy of the abstract, background, brief summary, pertinent claims and any citations of relevant art you have found.

Is this request for a BOARD of APPEALS case? (Circle One) YES  NO

Is this case a SPECIAL CASE? (Circle One) YES  NO

changing a join order during execution of a query

~~That is~~, Example: query is run to execute a first join order to obtain some results but based on statistics it is decided that a different join order for the query would execute the remaining joins more efficiently for the rest of the results.

STIC Searcher Terri Beale

Phone 2-8324

Date picked up 8-28-07

Date Completed 8-28-07

## Patent Abstracts

File 347:JAPIO Dec 1976-2007/Mar(Updated 070809)

(c) 2007 JPO & JAPIO

File 350:Derwent WPIX 1963-2007/UD=200754

(c) 2007 The Thomson Corporation

Set	Items	Description
S1	65858	JOIN???(2N)(ORDER? ? OR TABLE? ? OR PREDICATE? ? OR SELF? - OR INNER? OR NOTATION? OR EQUI OR THETA OR NATURAL? ? OR CROSS OR CARTESIAN OR OUTER OR METHOD? ? OR HASH? OR MERGE? OR SEQUENCE?) OR EQUIJOIN? ?
S2	429	(ALTER? ? OR ALTERATION OR ALTERNAT? OR CHANG??? OR CONVERT??? OR MODIFY??? OR MODIFICATION? ? OR RECONFIGUR??? OR RECONFIGURATION? ? OR REVIS??? OR TRANSFIGUR? OR TRANSFORM? OR UPDAD? OR UP(DAT???) (3N)S1
S3	5497062	PROCESS??? OR HANDL??? OR IMPLEMENTATION OR EXECUTION
S4	298882	(DURING OR TOGETHER OR SIMULTANEOUS? OR CONCURRENT? OR SAME(TIME OR INSTANT OR MOMENT) OR COINCIDENT?? OR COINSTANTANEOUS OR WHILE OR MIDST OR THROUGHOUT)(3N)S3
S5	343665	QUERY??? OR QUERIE? ? OR REQUEST??? OR ASK??? OR INQUIR??? OR REQUISITION? ? OR QUESTION?
S6	6808	S5(3N)(OPTIMI?ATION OR OPTIM?? OR BEST OR MAXIMUM OR GREATEST OR BIGGEST OR MAXIMAL OR TOP OR FAVORABLE OR FAVOURABLE OR IMPROV????? OR BOOST? OR ENHANC? OR INCREAS? OR BETTER OR AMPLIFY??? OR AMPLIFICATION OR INTENSIFY??? OR INTENSIFICATION)
S7	0	S2 AND S4 AND S6
S8	14	S2 AND S4
S9	9	S8 NOT AY=2003:2007
S10	11	S2 AND S6
S11	10	S10 NOT AY=2003:2007
S12	10	S11 NOT S9
S13	7	S1 AND S4 AND S6
S14	7	S13 NOT (S12 OR S9)
S15	6	S14 NOT AY=2003:2007
	?	

**9/3,K/1 (Item 1 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

(c) 2007 The Thomson Corporation. All rts. reserv.

0014740657 - Drawing available

WPI ACC NO: 2005-088283/200510

XRPX Acc No: N2005-077014

**User access request processing method for clustered computer system, involves detecting whether group data is already transmitted by leader, and performing transmission of data, if data is not already transmitted**

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC)

Inventor: MILLER R; MOREY V L; THAYIB K; WILLIAMS L A

**Patent Family (1 patents, 1 countries)**

Patent Application

Number Kind Date Number Kind Date Update

US 6839752 B1 20050104 US 2000697398 A 20001027 200510 B

Priority Applications (no., kind, date): US 2000697398 A 20001027

**Patent Details**

Number Kind Lan Pg Dwg Filing Notes

US 6839752 B1 EN 11 3

**Original Publication Data by Authority**

**Original Abstracts:**

...product and method utilize subgroup-specific leader members to exchange group data between group members **during the handling of a request to** organize members into a group in a clustered computer system, e.g., when handling a membership change operation such as **a merge or join**. Such **subgroup leaders may** be determined locally within individual subgroup members, and moreover, the subgroup members may locally track...

**9/3,K/2 (Item 2 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

(c) 2007 The Thomson Corporation. All rts. reserv.

0013431199 - Drawing available

WPI ACC NO: 2003-522040/200349

XRPX Acc No: N2003-414140

**Database query processing method for adaptive memory allocation system, estimates size of memory needed for operation based on memory requirements of operator and size of memory dedicated to operator**

Patent Assignee: DAGEVILLE B (DAGE-I); ZAIT M (ZAIT-I)

Inventor: DAGEVILLE B; ZAIT M

**Patent Family** (1 patents, 1 countries)

Patent	Application					
Number	Kind	Date	Number	Kind	Date	Update
US 20030065688	A1	20030403	US 2001969334	A	20011001	200349 B

Priority Applications (no., kind, date): US 2001969334 A 20011001

#### **Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20030065688	A1	EN	25	11	

...size of memory that is dedicated to the operation by the database or data partially **processed during** the operation. The mode of operation for continuing the data processing, is changed using memory...

#### **Original Publication Data by Authority**

##### **Original Abstracts:**

...the input data was underestimated. In one embodiment, the operator checks, from time to time **while processing** a given **set of** input data, its current memory usage against an operator-level target or limit (either of...

...to the memory bound. For example, if the memory bound is decreased, a currently-executing **hash join** operator may **change its** mode from **an** optimal mode (in which mode there is no access to disk), to a one pass...

##### **Claims:**

...memory that can be dedicated to the operation by the database or (b) data partially **processed during** said operation; and performing the operation **in** a second mode to continue processing the data, using memory of the estimated size.

**9/3,K/3 (Item 3 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

(c) 2007 The Thomson Corporation. All rts. reserv.

0012478413 - Drawing available

WPI ACC NO: 2002-425216/200245

Related WPI Acc No: 2002-266429

XRPX Acc No: N2002-334350

**Data stream processing method for relational database management system, involves suspending scanning operation when there are no qualifying rows in table, and resuming scanning operation, when qualifying rows are added**

Patent Assignee: COMPAQ COMPUTER CORP (COPQ); HEWLETT-PACKARD  
DEV CO LP  
(HEWP)

Inventor: KLEIN J; RATHEE R K; VAN DER LINDEN R C; ZELLER H

Patent Family (2 patents, 1 countries)

Patent Application

Number	Kind	Ln	Date	Number	Kind	Date	Update
US 20020038313	A1	20020328	US 1999347997	A	19990706	200245	B
			US 2001997823	A	20011129		
US 6604102	B2	20030805	US 1999347997	A	19990706	200353	E
			US 2001997823	A	20011129		

Priority Applications (no., kind, date): US 1999347997 A 19990706; US 2001997823 A 20011129

#### Patent Details

Number	Kind	Ln	Pg	Dwg	Filing Notes
US 20020038313	A1	EN	30	18	Continuation of application US 1999347997
US 6604102	B2	EN			Continuation of application US 1999347997
					Continuation of patent US 6339772

**Alerting Abstract** ...ADVANTAGE - Result sets created by delete and update access operations can be joined with the **result** sets of **table** access **operators** , which enables efficient data processing through the use of delete and/or update operations embedded...

#### Original Publication Data by Authority

##### Original Abstracts:

...mode processing of data stored in a table. A scan operator performs table access functions **during execution** of the **streaming mode** query. The scan operator first performs an initial scan to access rows in a specified...

...mode processing of data stored in a table. A scan operator performs table access functions **during execution** of the streaming mode query. The scan **operator** **first** performs an initial scan to access rows in a specified database table, and then performs...

9/3,K/8 (Item 8 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0004693722 - Drawing available

WPI ACC NO: 1989-055319/198908

Related WPI Acc No: 1989-055318

**Duplex-paired devices maintenance for data processor - uses states information which allows only changed records to be copied to secondary device of dual copy**

Patent Assignee: IBM CORP (IBMC); INT BUSINESS MACHINES CORP (IBMC)

Inventor: BEARDSLEY B C; BERGER B H; BOULIA L H; SMITH B P; VOSACEK R H

**Patent Family (5 patents, 5 countries)**

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
EP 303856	A	19890222	EP 1988112033	A	19880724	198908 B
US 5051887	A	19910924	US 198787331	A	19870820	199141 E
			US 198789151	A	19870825	
			US 1990614983	A	19901119	
EP 303856	B1	19950405	EP 1988112033	A	19880726	199518 E
SG 199401502	A	19950317	SG 19941502	A	19941017	199522 E
DE 3853503	G	19950511	DE 3853503	A	19880726	199524 E
			EP 1988112033	A	19880726	

Priority Applications (no., kind, date): US 1990614983 A 19901119; US 198787331 A 19870820; US 198789151 A 19870825

#### **Patent Details**

Number Kind Lan Pg Dwg Filing Notes

EP 303856 A EN 17 5

Regional Designated States,Original: DE FR GB IT

EP 303856 B1 EN 18 5

Regional Designated States,Original: DE FR GB IT

SG 199401502 A EN Previously issued patent EP 303855

DE 3853503 G DE Application EP 1988112033  
Based on OPI patent EP 303856

#### **Original Titles:**

...Maintaining duplex-paired storage devices **during** gap processing using of a dual copy function

#### **Original Publication Data by Authority**

#### **Claims:**

...a reconfiguration count, a device identification number and controller identification number recorded thereon, the status **table** in the **joint** array structure ( **200** ) comprising means **for** storing said **reconfiguration** count,said device identification number and said controller identification number for each of the data...

12/3,K/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2007 The Thomson Corporation. All rts. reserv.

0013244810 - Drawing available  
WPI ACC NO: 2003-329998/200331  
XRPX Acc No: N2003-264107

**Query method in computer system, involves removing right quantifiers from left outer join query, when one of column from right quantifier is projected out of query**

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC)

Inventor: KIERNAN G G; SHANMUGASUNDARAM J

**Patent Family** (2 patents, 1 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
US 20030009450	A1	20030109	US 2001887582	A	20010621	200331 B
US 6721730	B2	20040413	US 2001887582	A	20010621	200425 E

Priority Applications (no., kind, date): US 2001887582 A 20010621

#### **Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20030009450	A1	EN	9	3	

**Alerting Abstract** ...quantifier of left outer join query is projected out of the query. Then the left outer join query is converted into simple select query....USE - For optimization of queries in database management system performed by computers...

...DESCRIPTION OF DRAWINGS - The figure shows the computer hardware environment for query optimization .

#### **Original Publication Data by Authority**

##### **Original Abstracts:**

A query optimization technique that determines whether any column from a right quantifier of a left outer join query is projected out...

...removed from the left outer join query, the right quantifier is removed from the left outer join query, and the left outer join query is converted to a simple select query. A number of steps are performed to determine whether any of the columns quantified...

...for the right quantifier. If the right quantifier columns are not projected out of the query , then the optimization may be performed.

...A query optimization technique that determines whether any column from a right quantifier of a left outer join query is projected out of the query. If not...

...query, the right quantifier is removed from the left outer join query, and the left **outer join query is converted** to a simple select query . A number of steps are performed to determine whether any of the columns quantified by the right quantifier participate...

...for the right quantifier. If the right quantifier columns are not projected out of the **query** , then the **optimization** may be performed.

**Claims:**

...ON clause of the left outer join query, removing the right quantifier from the left **outer join query**, and **converting** the left **outer join query** to a simple **select query** .

...

...ON clause of the left outer join query, removing the right quantifier from the left **outer join query**, and **converting** the left **outer join query** to a simple **select query**.

**12/3,K/2 (Item 2 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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0013164617 - Drawing available

WPI ACC NO: 2003-247529/200324

XRPX Acc No: N2003-196737

**Negated nested query performing method for relational database management system, involves judging whether order of joins produce semantically correct answer, when executed, by extending normal eligibility list**

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC)

Inventor: LINDSAY B G; LOHMAN G M; PIRAHESH M H; RAO J

**Patent Family** (2 patents, 1 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
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US 20020188600	A1	20021212	US 2001809846	A	20010315	200324 B
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US 6665663	B2	20031216	US 2001809846	A	20010315	200382 E
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Priority Applications (no., kind, date): US 2001809846 A 20010315

**Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
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US 20020188600	A1	EN	36	13	
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**Alerting Abstract** ...ADVANTAGE - The **order** of join evaluation is changed to minimize an estimated cost and can improve execution time. The semantics of the original **query** is preserved by EEL. The optimizer will not combine subplans using join predicate whose EEL...

**12/3,K/3 (Item 3 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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0012656898 - Drawing available

WPI ACC NO: 2002-506609/200254

XRPX Acc No: N2002-400785

**Query optimization method for relational database management system, involves transforming joined table expressions by simplifying joins, when non-null predicate references null-supplying side of joined table expression**

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC)

Inventor: CHEN Y S; LIN F; MUKAI J; TIE H; WANG Y

**Patent Family (1 patents, 1 countries)**

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
US 6385603	B1	20020507	US 1999332544	A	19990614	200254 B

Priority Applications (no., kind, date): US 1999332544 A 19990614

#### **Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 6385603	B1	EN	13	4	

**Query optimization method for relational database management system, involves transforming joined table expressions by simplifying joins, when non-null predicate references null-supplying side of joined table...**

#### **Original Titles:**

Joined table expression optimization by query transformation.

**Alerting Abstract** ...The joined table expression included in a query, is determined by analyzing the query. The joined table expressions are transformed, by simplifying the joins within the joined table expressions, when a non-null predicate from...

**DESCRIPTION** - An INDEPENDENT CLAIM is included for query optimization apparatus...

#### **Original Publication Data by Authority**

#### **Original Abstracts:**

...optimizer analyzes a query and triggers a sequence of transformations to achieve optimal performance for joined table expressions. The transformations include pushing down predicates for joined table expressions and pushing down non-null predicates to simplify join operators for joined table expressions.

#### **Claims:**

...management system, comprising:(a) analyzing the query to determine whether it contains at least one joined table expression; and( b ) transforming the joined table expressions by simplifying joins within the joined table expressions;( c ) wherein the transforming step comprises transforming a join when an ON clause from a parent joined table expression references a null supplying side of a child joined table expression.

**12/3,K/4 (Item 4 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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0011147485 - Drawing available

WPI ACC NO: 2002-084483/200212

XRPX Acc No: N2002-062798

**Data retrieval optimization method for relational database management system, involves updating join indexes that are defined to reflect updated records stored in table**

Patent Assignee: NCR CORP (NATC); NCR INT INC (NATC)

Inventor: AU G K; HOANG C K; ON AU G K

**Patent Family (2 patents, 27 countries)**

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
EP 1164508	A2	20011219	EP 2001304926	A	20010606	200212 B
US 6618720	B1	20030909	US 2000594299	A	20000615	200361 E

Priority Applications (no., kind, date): US 2000594299 A 20000615

**Patent Details**

Number Kind Lan Pg Dwg Filing Notes

EP 1164508 A2 EN 15 5

Regional Designated States,Original: AL AT BE CH CY DE DK ES FI FR GB GR  
IE IT LI LT LU LV MC MK NL PT RO SE SI TR

**Alerting Abstract ...ADVANTAGE - The performance of queries are improved and the amount of overhead incurred during maintenance of join indexes is minimized...**

**Original Publication Data by Authority**

**Original Abstracts:**

...plurality of join indexed. The join indexes are defined for a table stored in the database. The join indexes are updated to reflect any updated records stored in the table, wherein one or more common joins...

...join indexed. The join indexes are defined for a table stored in the database. The join indexes are updated to reflect any updated records stored in the table, wherein one or more common joins are identified among the join indexes, each of the common joins are materialized only once in a common spool file...

**Claims:**

...a table in the database; and (b) updating a plurality of join indexes defined for the table to reflect the updated records stored in the table...

...records stored in the table, wherein one or more common joins are identified among the join indexes, each of the common joins are materialized only once in a common spool file, and the common spool file is used...

**12/3,K/5 (Item 5 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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0009611563 - Drawing available

WPI ACC NO: 1999-561266/199947

Related WPI Acc No: 1998-120258; 1999-131663; 1999-180316

XRPX Acc No: N1999-414721

**Complex structured query language queries reordering method employed in PC, mainframe, minicomputer, etc**

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC)

Inventor: GOEL P; IYER B R

**Patent Family (1 patents, 1 countries)**

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
US 5960427	A	19990928	US 1996655300	A	19960530	199947 B
			US 1997905106	A	19970801	

Priority Applications (no., kind, date): US 1996655300 A 19960530; US 1997905106 A 19970801

**Patent Details**

Number Kind Lan Pg Dwg Filing Notes

US 5960427 A EN 17 6 Continuation of application US

1996655300

Continuation of patent US 5713015

**Alerting Abstract ...ADVANTAGE - Improves query processing efficiency by eliminating redundant sub-expressions present in the query and thereby simplifying the...**

**Original Publication Data by Authority**

**Original Abstracts:**

...by applying generalized inference propagation and generalized transitive closure in SQL queries having selection, projection, **join**, **outer join**, and **intersection operations**. The disclosed **transformations** and **enumeration method** unify and solve the problems of 1) unnesting join aggregate queries, and...

**12/3,K/6 (Item 6 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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0009011951 - Drawing available

WPI ACC NO: 1998-568202/199848

XRPX Acc No: N1998-442090

**SQL query processing method in relational database management system - involves converting outer join operation created by decorrelation processing into correlated scalar derived table with COALESCE function**

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC)

Inventor: JOU M M; LEUNG T Y; PIRAHESH M H

**Patent Family (1 patents, 1 countries)**

Patent Application

Number Kind Date Number Kind Date Update

US 5822750 A 19981013 US 1997884868 A 19970630 199848 B

Priority Applications (no., kind, date): US 1997884868 A 19970630

**Patent Details**

Number Kind Lan Pg Dwg Filing Notes

...involves converting outer join operation created by decorrelation processing into correlated scalar derived table with COALESCE function

**Original Titles:**

Optimization of correlated SQL queries in a relational database management system.

**Alerting Abstract** ...correlation bindings in the outer join operation is obtained from the correlation source. The created outer join operation is converted into a correlated scalar derived table with a COALESCE function...

...derived table evaluation without accessing any base tables. Eliminates table access operations in evaluation of query. Increases efficiency. Eliminates join operation generated by decorrelation process thereby increasing operating efficiency of system.

**Original Publication Data by Authority**

**Original Abstracts:**

...of zero from the null. The correlation level remains one. The query processor also performs a pass-through optimization to eliminate a join operation for floating SELECT operation by removing a join operation involving...

**Claims:**

...was created by the decorrelation operation; and responding to a created outer join operation by converting the created outer join operation of the decorrelated subquery into a correlated scalar derived table with a COALESCE function, wherein the input to the function is the result from the...

12/3,K/7 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0009003816 - Drawing available

WPI ACC NO: 1998-559636/199848

XRPX Acc No: N1998-436409

**Join order selecting method implemented on computer for query in database system - computes value of Sigma metric for each join order of set of possible join orders, selects join order for query with computed values of Sigma metric, value of join order is sum over all joins in estimate order of cardinality of each join**

Patent Assignee: INFORMIX SOFTWARE INC (INFO-N); INT BUSINESS MACHINES CORP (IBMC)

Inventor: KRISHNA M M

**Patent Family** (10 patents, 31 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
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EP 875838	A2	19981104	EP 1998303480	A	19980505	199848 B
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AU 199863568	A	19981105	AU 199863568	A	19980424	199905 E
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JP 11007454	A	19990112	JP 1998119252	A	19980428	199912 E
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CA 2236494 A 19981102 CA 2236494 A 19980501 199915 E  
BR 199801531 A 19990330 BR 19981531 A 19980430 199919 E  
MX 199803441 A1 19990201 MX 19983441 A 19980430 200055 E  
US 6138111 A 20001024 US 1997850246 A 19970502 200055 E  
AU 730251 B 20010301 AU 199863568 A 19980424 200117 E  
MX 211203 B 20021106 MX 19983441 A 19980430 200381 E  
EP 875838 B1 20070801 EP 1998303480 A 19980505 200753 E

Priority Applications (no., kind, date): US 1997850246 A 19970502; EP 1998303480 A 19980505

#### Patent Details

Number Kind Lan Pg Dwg Filing Notes

EP 875838 A2 EN 15 6

Regional Designated States,Original: AL AT BE CH CY DE DK ES FI FR GB GR  
IE IT LI LT LU LV MC MK NL PT RO SE SI

JP 11007454 A JA 13

CA 2236494 A EN

BR 199801531 A PT

AU 730251 B EN Previously issued patent AU 9863568

EP 875838 B1 EN

Regional Designated States,Original: BE CH DE ES FR GB IE IT LI NL SE

**Alerting Abstract** ...USE - **Query optimisation** in database system and  
to join order optimisation in relational database systems...  
...order in multiple join order query by using metric designed to compare  
relative efficiencies of **alternative join orders**.

#### 12/3,K/8 (Item 8 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0007767696 - Drawing available

WPI ACC NO: 1996-392950/199639

Related WPI Acc No: 1996-392947

XRPX Acc No: N1996-331190

**SQL query optimisation method for RDBMS** - involves performing **early-out**  
**join operation in place of join** when distinctiveness required in query and  
**inner columns are bound and not involved in length sensitive expressions**

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC)

Inventor: LEUNG T Y; LOHMAN G M; PIRAHESH M H; SHEKITA E J; SIMMEN D E

**Patent Family** (1 patents, 1 countries)

Patent Application

Number Kind Date Number Kind Date Update

US 5548758 A 19960820 US 1995385177 A 19950207 199639 B  
US 1995463968 A 19950605

Priority Applications (no., kind, date): US 1995385177 A 19950207; US 1995463968 A 19950605

#### Patent Details

Number Kind Lan Pg Dwg Filing Notes

US 5548758 A EN 12 5 Division of application US 1995385177

**SQL query optimisation method for RDBMS...**

**Original Titles:**

Optimization of SQL queries using early-out join transformations of column-bound relational tables.

**Original Publication Data by Authority**

**Original Abstracts:**

...of the outer table when a single match is found in the inner table. To transform a **many -to- many join** to an early-out join, the query must include a requirement for distinctiveness, either explicitly...

**12/3,K/9 (Item 9 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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0007767693 - Drawing available

WPI ACC NO: 1996-392947/199639

Related WPI Acc No: 1996-392950

**Computer database standard query language query optimising - scanning inner table for match for each row of outer table and terminating scan for each row of outer table when match is found in inner table**

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC)

Inventor: LEUNG T Y; LOHMAN G M; PIRAHESH M H; SHEKITA E J; SIMMEN D E

**Patent Family (1 patents, 1 countries)**

Patent Application

Number Kind Date Number Kind Date Update

US 5548754 A 19960820 US 1995385177 A 19950207 199639 B

Priority Applications (no., kind, date): US 1995385177 A 19950207

**Patent Details**

Number Kind Lan Pg Dwg Filing Notes

US 5548754 A EN 12 5

**Original Titles:**

Optimization of SQL queries using early-out join transformations.

**Original Publication Data by Authority**

**Original Abstracts:**

...of the outer table when a single match is found in the inner table. To transform a **many -to- many join** to an early-out join, the query must include a requirement for distinctiveness, either explicitly...

**12/3,K/10 (Item 10 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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0006892703 - Drawing available  
WPI ACC NO: 1994-285857/199435  
XRPX Acc No: N1994-225092

**Joint queries optimising process - assigning join method at random to each of joint operations to produce current joint method assignment scheme**

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC)

Inventor: IYER B R; SWAMI A N

**Patent Family (1 patents, 1 countries)**

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
US 5345585	A	19940906	US 1991801306	A	19911202	199435 B

Priority Applications (no., kind, date): US 1991801306 A 19911202

**Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 5345585	A	EN	16	7	

**Original Titles:**

Method for optimizing processing of join **queries** by determining **optimal** processing order and assigning optimal join methods to each of the join operations

**Alerting Abstract** ...join order scheme then assigning the current join method in response to the identified optimal **joint method** to produce no change condition...

**Original Publication Data by Authority**

**Original Abstracts:**

...to determine a join optimization sequence and further refinement is provided by determining costs for **alternate join order sequences** using **alternate join methods**.

**Claims:**

...join methods; and (f) repeating steps (b) through (e) until there is no change produced to said current **join order scheme** and said current **join method assignment scheme**.

**15/3,K/1 (Item 1 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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0012990658 - Drawing available  
WPI ACC NO: 2003-068506/200306  
XRPX Acc No: N2003-053213

**Accessing database information defined by analytic application by generating metrics and dividing ranking query into sub-commands for data table generation**

Patent Assignee: INFORMATICA CORP (INFO-N)

Inventor: HSU J; SHRINGERI S

**Patent Family (4 patents, 99 countries)**

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
WO 2002103575	A2	20021227	WO 2002US19279	A	20020618	200306 B
US 6640226	B1	20031028	US 2001885666	A	20010619	200372 E

EP 1402417 A2 20040331 EP 2002746569 A 20020618 200424 E  
WO 2002US19279 A 20020618  
AU 2002316277 A1 20030102 AU 2002316277 A 20020618 200452 E

Priority Applications (no., kind, date): US 2001885666 A 20010619

#### **Patent Details**

Number Kind Lan Pg Dwg Filing Notes  
WO 2002103575 A2 EN 28 5

National Designated States,Original: AE AG AL AM AT AU AZ BA BB BG BR BY  
BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID  
IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ  
NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN  
YU ZA ZM ZW

Regional Designated States,Original: AT BE CH CY DE DK EA ES FI FR GB GH  
GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW  
EP 1402417 A2 EN PCT Application WO 2002US19279  
Based on OPI patent WO 2002103575

Regional Designated States,Original: AL AT BE CH CY DE DK ES FI FR GB GR  
IE IT LI LT LU LV MC MK NL PT RO SE SI TR  
AU 2002316277 A1 EN Based on OPI patent WO 2002103575

#### **Original Titles:**

...Ranking query optimization in analytic applications...

#### **Original Publication Data by Authority**

#### **Original Abstracts:**

...data is joined as the last step of the process in order to minimize the  
number of join operations performed by the query while the batch is  
being executed, thereby facilitating the query...

...query operation. The extracted data is joined as the last step of the  
process in order to minimize the number of join operations performed  
by the query while the batch is being executed, thereby facilitating the  
query process .

...

...the process in order to minimize the number of join operations performed  
by the query while the batch is being executed, thereby facilitating the  
query process .

**15/3,K2 (Item 2 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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0010976890 - Drawing available

WPI ACC NO: 2001-601079/200168

XRPX Acc No: N2001-448312

Database table joining method for computer database system, involves  
setting flags of rows of probe table that matches with rows of standard  
table

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC)

Inventor: LINDSAY B G; SHEKITA E J

Patent Family (1 patents, 1 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
US 6253197	B1	20010626	US 1998167395	A	19981006	200168 B

Priority Applications (no., kind, date): US 1998167395 A 19981006

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
US 6253197	B1	EN	13	7		

Database table joining method for computer database system, involves setting flags of rows of probe table that matches with...

#### Original Titles:

System and method for hash loops join of data using outer join and early-out join.

Alerting Abstract ...standard table and probe table are reversed. The rows and columns of standard and probe tables are joined during hash loop execution process. The rows of the probe table that matches with the rows of standard table are...

...ADVANTAGE - The database table joining process improves efficiency of query processing for a computer database system, by joining the probe table and standard table using hash loop join.

...

...DESCRIPTION OF DRAWINGS - The figure shows the schematic diagram for joining the database tables

#### Original Publication Data by Authority

#### Original Abstracts:

A system and method for joining a build table to a probe table in response to a query for data includes executing a hash loops join of the build table and the probe table. Matched rows are joined and output when the rows match each other by satisfying a join predicate. In an outer join, unmatched rows in the probe table are joined to a NULL build table field values and output, such that all rows of the...

...once" table defines the probe table and in response to a query for unique probe table outputs, the joining of a probe table row, once joined and output a first time, to any other rows in the other table is prevented...

...of whether the row might match other rows. In both the hash loops early-out join and the hash loops outer join, when the build table is larger than main memory, the roles of the build and...

#### Claims:

A computer-implemented method for integrating at least one of: an early-out table join, and a left or right outer table join, in a hash loops procedure when a size of a build table of the hash loops procedure exceeds a main...

...the method comprising: reversing the roles of the build table and probe table; executing a **hash loops join** of the build table and probe table; and flagging rows of the probe table that match rows of the build table.

**15/3,K/3 (Item 3 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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0009533518 - Drawing available  
WPI ACC NO: 1999-478288/199940

XRPX Acc No: N1999-356022

**Duplicate tuples elimination method in database management system**

Patent Assignee: SYBASE INC (SYBA-N)

Inventor: HILLEGAS R

**Patent Family** (1 patents, 1 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
US 5937401	A	19990810	US 1996757367	A	19961127	199940 B

Priority Applications (no., kind, date): US 1996757367 A 19961127

**Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 5937401	A	EN	15	2	

**Alerting Abstract** ...selection criteria is executed, by scanning the selected database tables (250) according to the determined **join order**. The **inner** most table is scanned, thereby executing the filter which filters the duplicate tuples from the...

...specifies the selection criteria for the information of interest from the database system. The determined **join order** indicates the innermost and outermost tables of the selected join so as to guarantee that...

**Original Publication Data by Authority**

**Original Abstracts:**

...to perform a sort. The filter, which is implemented as an optimization at the level of the **query processor**, comprises two basic pieces. The first piece, INIT--FILTER, simply serves to initialize the...

...is constructed from it. The positions of both INIT--FILTER and FILTER in a given **join order** are important. INIT--FILTER immediately precedes the **scan** which initializes the filter; FILTER immediately follows the scan which actually performs the filtering.

**Claims:**

...interest is to be selected by a database join operation which joins selected ones of **said** database **tables** by one or more columns shared between tables (key columns), said query further specifying that the particular information is to be returned as distinct tuples; determining a **join order** specifying a **sequence** indicating **how** **said** selected ones of said database tables are to be preferentially scanned by the system for determining which tuples of each **said** selected ones of said database

tables qualify, said **join order** indicating **innermost** and outermost tables of the **join** and being selected so as to guarantee that tuples will stream in order **during execution** of the query; initializing a **filter** at the outermost table for said one or more key columns, for forcing the method...

...tuple stream satisfying said selection criteria, said executing step including scanning, according to said determined **join order**, said selected ones of said database tables; and as the **innermost table** is scanned, executing the filter for filtering duplicate tuples from the tuple stream by discarding...

**15/3,K/4 (Item 4 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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0009011950 - Drawing available

WPI ACC NO: 1998-568201/199848

Related WPI Acc No: 1997-526022; 1998-531458; 2000-375416

XRPX Acc No: N1998-442089

**Database query processing method e.g. for SQL based data processing system, RDBMS - involves retrieving data pages for storing information located by navigating clustered index, a specific block size**

Patent Assignee: SYBASE INC (SYBA-N)

Inventor: AGARWAL B

**Patent Family (1 patents, 1 countries)**

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
US 5822749	A	19981013	US 1994273867	A	19940712	199848 B
			US 1995554126	A	19951106	
			US 199631177	P	19961119	
			US 1997808604	A	19970228	

Priority Applications (no., kind, date): US 199631177 P 19961119; US 1995554126 A 19951106; US 1994273867 A 19940712; US 1997808604 A 19970228

**Patent Details**

Number Kind Lan Pg Dwg Filing Notes

US 5822749	A	EN	38	11	C-I-P of application	US 1994273867
					C-I-P of application	US 1995554126
					Related to Provisional	US 199631177
					C-I-P of patent	US 5680573

**Original Titles:**

Database system with methods for **improving query** performance with cache optimization strategies.

**Alerting Abstract ...ADVANTAGE - Improves** data and **query** processing efficiency.

**Original Publication Data by Authority**

**Original Abstracts:**

Database system and methods are described for improving execution speed of

**database queries** (e.g., for transaction processing and for decision support) by optimizing use of buffer caches. The system includes an Optimizer for formulating an optimal strategy for a **given query**. More particularly, the Optimizer communicates with a Buffer Manager before it formulates the query plan...

...is, in effect, passed down to the Buffer Manager so that it may service the **query** using an **optimal caching strategy**--one **based** on the dynamics of the query itself. Based on the "hints" received from the Optimizer...

...clustered index, and non-clustered index access. Additional strategies are described for multi-table access **during processing of join queries.** >

**15/3,K/5 (Item 5 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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0008916630 - Drawing available  
WPI ACC NO: 1998-467096/199840  
Related WPI Acc No: 1998-347976  
XRPX Acc No: N1998-363927

**Parallel query method for database in multiprocessor system - involves dividing query into multiple sub-queries corresponding to subsets of selected table having maximum estimated contribution to overall cost of query and allowing partitioned access**

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC)

Inventor: BHATTACHARYA P P; CHUNG J; PIRAHESH M H; SELINGER P G; VIVEROS M S; WANG Y; ZAINO L P

**Patent Family** (1 patents, 1 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
US 5797000	A	19980818	US 1993148769	A	19931104	199840 B
			US 1996667056	A	19960620	

Priority Applications (no., kind, date): US 1993148769 A 19931104; US 1996667056 A 19960620

**Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 5797000	A	EN	15	12	Division of application US 1993148769

**Alerting Abstract** ...contribution of each table (200,300) stored in the database, to the overall cost of **query**. The table with **maximum** estimated contribution to overall cost of query and allowing partitioned access is selected...

**Original Publication Data by Authority**

**Original Abstracts:**

A method of performing a **parallel join** operation on a pair of relations R1 and R2 in a system containing P processors...

...P/Q processors each. The system contains disk storage for each cluster, shared by the **processors** of that cluster, **together** with a shared **intermediate** memory (SIM) accessible by all processors. The relations R1 and R2 to be joined are...

...larger time estimates are assigned (and the corresponding tuples shipped) to the cluster to which **processor** p belongs, **while** tasks with smaller time estimates are assigned to the SIM, which is **regarded** as a **universal** cluster (cluster 0). The actual task-to-processor assignments are determined dynamically during the join phase in accordance with the dynamic longest processing time first (DLPT) algorithm. Each **processor** within a cluster picks its next task at any given decision point to be the

...

**Claims:**

...of each of said tables to the overall cost of said query; selecting the table **with the greatest** estimated contribution to the overall **cost** of said **query** that also permits partitioned access; partitioning the selected table into a plurality of subsets of...

**15/3,K/6 (Item 6 from file: 350)**

DIALOG(R)File 350:Derwent WPIX

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0005677979 - Drawing available

WPI ACC NO: 1991-289561/199140

XRPX Acc No: N1991-221699

**Database processing system with functional co-processor - uses specialised functional units for database operations centred on partitioned working store**

Patent Assignee: IBM CORP (IBMC); INT BUSINESS MACHINES CORP (IBMC)

Inventor: BAUM R I; BRENT G A; GIBSON D H; LINDQUIST D B

**Patent Family (10 patents, 4 countries)**

Patent	Application		
Number	Kind Date Number	Kind Date	Update
EP 449096	A 19911002 EP 1991104337	A 19910320	199140 B
US 5210870	A 19930511 US 1990499844	A 19900327	199320 E
EP 449096	A3 19930721 EP 1991104337	A 19910320	199406 E
US 5530883	A 19960625 US 1990499844	A 19900327	199631 E
	US 1993993165	A 19930211	
	US 1994327348	A 19941021	
US 5537603	A 19960716 US 1990499844	A 19900327	199634 E
	US 1993993254	A 19930210	
	US 1994323424	A 19941014	
US 5537604	A 19960716 US 1990499844	A 19900327	199634 E
	US 1992993252	A 19921218	
	US 1994327345	A 19941021	
US 5537622	A 19960716 US 1990499844	A 19900327	199634 E
	US 1992993324	A 19921218	
	US 1994323425	A 19941014	
US 5548769	A 19960820 US 1990499844	A 19900327	199639 E
	US 1992993253	A 19921218	
US 5590362	A 19961231 US 1990499844	A 19900326	199707 E
	US 1992993170	A 19921218	
	US 1994243729	A 19940517	

US 1995378985 A 19950124  
US 5619713 A 19970408 US 1990499844 A 19900327 199720 E  
US 1993993270 A 19930211  
US 1995390143 A 19950217

Priority Applications (no., kind, date): US 1990499844 A 19900326; US 1990499844 A 19900327; US 1992993170 A 19921218; US 1992993252 A 19921218; US 1992993253 A 19921218; US 1992993324 A 19921218; US 1993993254 A 19930210; US 1993993165 A 19930211; US 1993993270 A 19930211; US 1994243729 A 19940517; US 1994323424 A 19941014; US 1994323425 A 19941014; US 1994327345 A 19941021; US 1994327348 A 19941021; US 1995378985 A 19950124; US 1995390143 A 19950217

#### Patent Details

Number Kind Lan Pg Dwg Filing Notes

EP 449096 A EN

Regional Designated States,Original: DE FR GB IT

US 5210870 A EN 44 22

EP 449096 A3 EN

US 5530883 A EN 46 22 Division of application US 1990499844

Continuation of application US

1993993165

Division of patent US 5210870

US 5537603 A EN 46 22 Division of application US 1990499844

Continuation of application US

1993993254

Division of patent US 5210870

US 5537604 A EN 46 22 Division of application US 1990499844

Continuation of application US

1992993252

Division of patent US 5210870

US 5537622 A EN 18 26 Division of application US 1990499844

Continuation of application US

1992993324

Division of patent US 5210870

US 5548769 A EN 47 22 Division of application US 1990499844

Division of patent US 5210870

US 5590362 A EN 46 22 Division of application US 1990499844

Continuation of application US

1992993170

Continuation of application US

1994243729

Division of patent US 5210870

US 5619713 A EN 47 22 Division of application US 1990499844

Continuation of application US

1993993270

Division of patent US 5210870

**Alerting Abstract** ...The processing elements work **together** to

process database queries such as sort/merges (302), searching (304), has-code generation (306), record field...

**Equivalent Alerting Abstract** ...functional units: a memory interface and field extractor/assembler, a Predicate Evaluator, a combined sort/ **merge / join** unit, a **hasher** , and a microcoded control processor, which are all centered around a partitioned Working Store. Each...

...function it performs, the executes its portion of the query efficiently. All functional units execute **simultaneously** under the control **processor** to achieve the desired results...

...Many different database functions can be performed by chaining simple operations **together** . The **processor** can effectively replace the CPU bound portions of complex database operations with functions that run at the maximum memory access rate **improving** performance on complex **queries**

#### Original Publication Data by Authority

##### Original Abstracts:

...functional units: a memory interface and field extractor/assembler, a Predicate Evaluator, a combined sort/ **merge / join** unit, a **hasher** , and a microcoded control processor, are all centered around a partitioned Working Store. Each functional...

...function it performs, and executes its portion of the query efficiently. All functional units execute **simultaneously** under the control **processor** to achieve the desired results. Many different database functions can be performed by chaining simple operations **together** . The **processor** can effectively replace the CPU bound portions of complex database operations with functions that run at the maximum memory access rate **improving** performance on complex **queries** .

...functional units: a memory interface and field extractor/assembler, a Predicate Evaluator, a combined sort/ **merge / join** unit, a **hasher** , and a microcoded control processor, are all centered around a partitioned Working Store. Each functional...

...function it performs, and executes its portion of the query efficiently. All functional units execute **simultaneously** under the control **processor** to achieve the desired results. Many different database functions can be performed by chaining simple operations **together** . The **processor** can effectively replace the CPU bound portions of complex database operations with functions that run at the maximum memory access rate **improving** performance on complex **queries** .

...functional units: a memory interface and field extractor/assembler, a Predicate Evaluator, a combined sort/ **merge / join** unit, a **hasher** , and a microcoded control processor, are all centered around a partitioned Working

Store. Each functional...

...function it performs, and executes its portion of the query efficiently. All functional units execute **simultaneously** under the control **processor** to achieve the desired results. Many different database functions can be performed by chaining simple operations **together**. The **processor** can effectively replace the CPU bound portions of complex database operations with functions that run at the maximum memory access rate **improving** performance on complex **queries**.

...  
...functional units: a memory interface and field extractor/assembler, a Predicate Evaluator, a combined sort/ **merge / join** unit, a **hasher**, and a microcoded control processor, are all centered around a partitioned Working Store. Each functional...

...function it performs, and executes its portion of the query efficiently. All functional units execute **simultaneously** under the control **processor** to achieve the desired results. Many different database functions can be performed by chaining simple operations **together**. The **processor** can effectively replace the CPU bound portions of complex database operations with functions that run at the maximum memory access rate **improving** performance on complex **queries**.

...

...functional units: a memory interface and field extractor/assembler, a Predicate Evaluator, a combined sort/ **merge / join** unit, a **hasher**, and a microcoded control processor, are all centered around a partitioned Working Store. Each functional...

...function it performs, and executes its portion of the query efficiently. All functional units execute **simultaneously** under the control **processor** to achieve the desired results. Many different database functions can be performed by chaining simple operations **together**. The **processor** can effectively replace the CPU bound portions of complex database operations with functions that run at the maximum memory access rate **improving** performance on complex **queries**.

...

...functional units: a memory interface and field extractor/assembler, a Predicate Evaluator, a combined sort/ **merge / join** unit, a **hasher**, and a microcoded control processor, are all centered around a partitioned Working Store. Each functional...

...function it performs, and executes its portion of the query efficiently. All functional units execute **simultaneously** under the control **processor** to achieve the desired results. Many different database functions can be performed by chaining simple operations **together**. The **processor** can effectively replace the CPU bound portions of complex database operations with functions that run at the maximum memory access rate **improving** performance on complex **queries**.

...

...functional units: a memory interface and field extractor/assembler, a

Predicate Evaluator, a combined sort/ **merge / join** unit, a **hasher** , and a microcoded control processor, are all centered around a partitioned Working Store. Each functional...

...function it performs, and executes its portion of the query efficiently. All functional units execute **simultaneously** under the control **processor** to achieve the desired results. Many different database functions can be performed by chaining simple operations **together** . The **processor** can effectively replace the CPU bound portions of complex database operations with functions that run at the maximum memory access rate **improving** performance on complex **queries** .

...

...functional units: a memory interface and field extractor/assembler, a Predicate Evaluator, a combined sort/ **merge / join** unit, a **hasher** , and a microcoded control processor, are all centered around a partitioned Working Store. Each functional...

...function it performs, and executes its portion of the query efficiently. All functional units execute **simultaneously** under the control **processor** to achieve the desired results. Many different database functions can be performed by chaining simple operations **together** . The **processor** can effectively replace the CPU bound portions of complex database operations with functions that run at the maximum memory access rate **improving** performance on complex **queries** .

...

...functional units: a memory interface and field extractor/assembler, a Predicate Evaluator, a combined sort/ **merge / join** unit, a **hasher** , and a microcoded control processor, are all centered around a partitioned Working Store. Each functional...

...function it performs, and executes its portion of the query efficiently. All functional units execute **simultaneously** under the control **processor** to achieve the desired results. Many different database functions can be performed by chaining simple operations **together** . The **processor** can effectively replace the CPU bound portions of complex database operations with functions that run at the maximum memory access rate **improving** performance on complex **queries**. >

**Claims:**

...The **processing** elements work **together** to process database queries such as sort/merges (302), searching (304), has-code generation (306), record field...

...database command and a location in the system memory of a predicate to be used **during** the **processing** of the database command;</br>(b) parsing the database command into a sequence of predetermined database...

...in the predicate evaluation program for processing the query;</br>a stack for temporarily holding data **during** the **processing** of the predicate evaluation program, said data being other than said predicate evaluation program; and...

## Patent Fulltext

File 348:EUROPEAN PATENTS 1978-2007/ 200734

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File 349:PCT FULLTEXT 1979-2007/UB=20070816UT=20070809

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Set	Items	Description
S1	35871	JOIN???(2N)(ORDER? ? OR TABLE? ? OR PREDICATE? ? OR SELF? - OR INNER? OR NOTATION? OR EQUI OR THETA OR NATURAL? ? OR CROSS OR CARTESIAN OR OUTER OR METHOD? ? OR HASH? OR MERGE? OR SEQUENCE?) OR EQUIJOIN? ?
S2	756	(ALTER? ? OR ALTERATION OR ALTERNAT? OR CHANG??? OR CONVERT??? OR MODIFY??? OR MODIFICATION? ? OR RECONFIGUR??? OR RECONFIGURATION? ? OR REVIS??? OR TRANSFIGUR? OR TRANSFORM? OR UPDAD? OR UP(DAT???) (3N)S1
S3	1702320	PROCESS??? OR HANDL??? OR IMPLEMENTATION OR EXECUTION
S4	407674	(DURING OR TOGETHER OR SIMULTANEOUS? OR CONCURRENT? OR SAME(TIME OR INSTANT OR MOMENT) OR COINCIDENT? ? OR COINSTANTANEOUS OR WHILE OR MIDST OR THROUGHOUT)(3N)S3
S5	2088168	QUERY??? OR QUERIE? ? OR REQUEST??? OR ASK??? OR INQUIR??? OR REQUISITION? ? OR QUESTION?
S6	13650	S5(3N)(OPTIMI?ATION OR OPTIM?? OR BEST OR MAXIMUM OR GREATEST OR BIGGEST OR MAXIMAL OR TOP OR FAVORABLE OR FAVOURABLE OR IMPROV????? OR BOOST? OR ENHANC? OR INCREAS? OR BETTER OR AMPLIFY??? OR AMPLIFICATION OR INTENSIFY??? OR INTENSIFICATION)
S7	0	S2(50N)S4(50N)S6
S8	0	S2(100N)S4(100N)S6
S9	5	S2(25N)S4
S10	0	S2(25N)S6
S11	4	S2(100N)S6
S12	4	S9 NOT AY=2003:2007
S13	2	S11 NOT AY=2003:2007
S14	2	S13 NOT S12
S15	11	S1(100N)S4(100N)S6
S16	11	S15 NOT (S14 OR S12)
S17	5	S16 NOT AY=2003:2007

12/3,K/2 (Item 1 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00999987 \*\*Image available\*\*

**DYNAMIC AND AUTOMATIC MEMORY MANAGEMENT  
GESTION DE MEMOIRE DYNAMIQUE ET AUTOMATIQUE**

Patent Applicant/Assignee:

ORACLE INTERNATIONAL CORPORATION, 500 Oracle Parkway, Redwood Shores, CA 94065, US, US (Residence), US (Nationality)

Inventor(s):

DAGEVILLE Benoit, 625 Canoe Court, Redwood Shores, CA 94065, US;  
ZAIT Mohamed, 1319, La Bella Avenue, Sunnyvale, CA 94087, US,

Legal Representative:

SURYADEVARA Omkar K (agent), Silicon Valley Patent Group LLP, 2350 Mission College Boulevard, Suite 360, Santa Clara, CA 95054, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200329982 A2-A3 20030410 (WO 0329982)

Application: WO 2002US31223 20020930 (PCT/WO US02031223)

Priority Application: US 2001969290 200111001

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ  
EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR  
LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI  
SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW  
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR  
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG  
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW  
(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 9395

Fulltext Availability:

Detailed Description

Detailed Description

... operators of such embodiments may revise their estimates of memory requirements dynamically, during their operation.

Modifications to a hash-join operator and to a sort operator to implement a change of mode and change of allocated memory during execution are discussed briefly below.

In one embodiment, a hash-join operator of the AUTO version...

12/3,K/3 (Item 2 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00952055 \*\*Image available\*\*

**IN SITU RECOVERY FROM A RELATIVELY LOW PERMEABILITY FORMATION  
CONTAINING  
HEAVY HYDROCARBONS**  
**RECUPERATION IN SITU DANS UNE FORMATION A PERMEABILITE RELATIVEMENT  
BASSE**

**CONTENANT DES HYDROCARBURES**

Patent Applicant/Assignee:

SHELL OIL COMPANY, Christensen, Del, P.O. Box 2463, Houston, TX  
77252-2463, US, US (Residence), US (Nationality)

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BIELAMOWICZ Lawrence J, 5223 Chestnut, Bellaire, TX 77401, US,  
MESSIER Margaret, 1404 4A Street NW, Calgary, Alberta T2M 3B1, CA,  
PRATT Kip, Box 4, Site 7, RR-1, Cochrane, Alberta T4C 1A1, CA,  
LEPPER Bruce, 115 Waterloo Drive S.W., Calgary, Alberta T3C 3G4, CA,  
BASS Ronald, 3772 Ingold Street, Houston, TX 77005, US,  
MIKUS Tom, 906 Coachlight Drive, Houston, TX 77077-1108, US,  
GLANDT Carlos, Insulindeweg 27, NL-2612 EL Delft, NL,

Legal Representative:

MEYERTONS Eric B (agent), Conley, Rose & Tayon, P.C., P.O. Box 398,  
Austin, TX 78767-0398, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200286029 A2 20021031 (WO 0286029)

Application: WO 2002US13121 20020424 (PCT/WO US0213121)

Priority Application: US 2001286083 20010424; US 2001340185 20011024

Designated States:

(Protection type is "patent" unless otherwise stated - for applications  
prior to 2004)

AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ

EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR  
LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI  
SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW  
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR  
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG  
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW  
(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 417978

Fulltext Availability:

Detailed Description

Detailed Description

... of an embodiment of a method for design and/or control of an in situ  
**process**.

FIG. 30 depicts a method of modeling

**12/3,K/4 (Item 3 from file: 349)**

DIALOG(R)File 349:PCT FULLTEXT

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00217841 \*\*Image available\*\*

**METHOD OF EVALUATING A RECURSIVE QUERY OF A DATABASE  
PROCEDE POUR EVALUER UNE INTERROGATION RECURSIVE DANS UNE BASE DE  
DONNEES**

Patent Applicant/Assignee:

HEWLETT-PACKARD COMPANY,

Inventor(s):

SHAN Ming-Chien,

NEIMAT Marie-Anne,

Patent and Priority Information (Country, Number, Date):

Patent:  WO 9215066 A1 19920903

Application:  WO 92US1458 19920225 (PCT/WO US9201458)

Priority Application: US 91256 19910226

Designated States:

(Protection type is "patent" unless otherwise stated - for applications  
prior to 2004)

AT BE CH DE DK ES FR GB GR IT JP LU MC NL SE

Publication Language: English

Fulltext Word Count: 9315

Fulltext Availability:

Detailed Description

Detailed Description

... carried by "X". In order to preserve the correct answer, the join  
operator has to transform to a right outer join operator (see,  
generally, Date, C.. Relational Databases. Selected Writings,

Addison-Wesley Publishing Company, 1986) as it moves inside the fixpoint  
operator.

**During query execution , all tuples which are strictly the result of  
the outer join may be marked so...**

**14/3,K/1 (Item 1 from file: 348)**

DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2007 European Patent Office. All rts. reserv.

00966669

**Database query system and method**

**Datenbanksuchsystem und -verfahren**

**Systeme et methode d'interrogation de bases de donnees**

**PATENT ASSIGNEE:**

INTERNATIONAL BUSINESS MACHINES CORPORATION, (200123), , Armonk, NY  
10504, (US), (Applicant designated States: all)

**INVENTOR:**

Carey, Michael J., 1473 Almaden Valley Drive, San Jose, California 95120,  
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Kiernan, Gerald G., 1074 Wallace Drive, San Jose, California 95120, (US)

**LEGAL REPRESENTATIVE:**

Davies, Simon Robert (75452), IBM, United Kingdom Limited, Intellectual  
Property Law, Hursley Park, Winchester, Hampshire SO21 2JN, (GB)

**PATENT (CC, No, Kind, Date): EP 877328 A2 981111 (Basic)**

EP 877328 A3 000119

**APPLICATION (CC, No, Date): EP 98303616 980508;**

**PRIORITY (CC, No, Date): US 853294 970509; US 853976 970509**

**DESIGNATED STATES: DE; FR; GB**

**EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI**

**INTERNATIONAL PATENT CLASS (V7): G06F-017/30**

**ABSTRACT WORD COUNT: 360**

**NOTE:**

Figure number on first page: 9B

**LANGUAGE (Publication,Procedural,Application): English; English; English**

**FULLTEXT AVAILABILITY:**

Available Text Language Update Word Count

CLAIMS A (English) 9846 1410

SPEC A (English) 9846 17780

Total word count - document A 19190

Total word count - document B 0

Total word count - documents A + B 19190

...SPECIFICATION query that drives the object builder.

The preferred embodiment of this invention also contains a **query optimization** function which determines in which situations or cases objects should be built. For example, when...

...built. Also, if a query traverses a reference type attribute, but the query can be **transformed** into a **join** or **outer join** operation between relational tables, then no object building is required. In these above described situations...

**14/3,K/2 (Item 1 from file: 349)**

DIALOG(R)File 349:PCT FULLTEXT  
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00376923

**STRUCTURED FOCUSED HYPERTEXT DATA STRUCTURE**

## STRUCTURE DE DONNEES HYPERTEXTE ARTICULEE SUR LA STRUCTURATION

Patent Applicant/Assignee:

HYPERMED LTD,  
OREN Avraham,  
OLCHA Lev,  
KOWALSKI Nahum,  
MARGULYAN Rita,

Inventor(s):

OREN Avraham,  
OLCHA Lev,  
KOWALSKI Nahum,  
MARGULYAN Rita,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9717666 A2 19970515

Application: WO 96IL131 19961023 (PCT/WO IL9600131)

Priority Application: US 95551929 19951023

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IS JP KE  
KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE  
SG SI SK TJ TM TR TT UA UG US UZ VN KE LS MW SD SZ UG AM AZ BY KG KZ MD  
RU TJ TM AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG  
CI CM GA GN ML MR NE SN TD TG

Publication Language: English

Fulltext Word Count: 263802

Fulltext Availability:

Detailed Description

Detailed Description

... Pen

Arrow Global Const MASK-PEN = 9 9

Global Const CROSSHAIR 2 '2 - Mask Pen

Cross Global Const NOT-XOR-PEN = IO

Global Const IBEAM = 3 '3 - I- I 0 - Not...Contribut

make sure know that or Screen") =

chapriurn is a parent UncomplitedPageScreenID

Set q = tblTableOfChapters. Update

dbHyperText.OpenQueryDef("Set I

IsThisTheLast") I now must update the priorities

q! [Chapter To Set...Screen ID")

End Function tl("Type of chapter") =

tblTable0fChapters("Type of chapter")

Function t 1. Update

MakeBackupOfTOCandLinks I

I tbITableOfChapters.MoveNext

'This routine copies all of the TOC Loop

into a...

...out the the present backup Set t2 =

tables dbHyperText.OpenTable("Links from

Dim q As QueryDef, tl As Table Parent and Children Chapters")

Do Until t2.EOF

I

tl.AddNew  
148...

**17/3,K/2 (Item 2 from file: 348)**  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2007 European Patent Office. All rts. reserv.

00458617

**Database processing system.**

**Datenbankverarbeitungssystem.**

**Système de traitement de base de données.**

**PATENT ASSIGNEE:**

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**PATENT (CC, No, Kind, Date): EP 449096 A2 911002 (Basic)**

EP 449096 A3 930721

**APPLICATION (CC, No, Date): EP 91104337 910320;**

**PRIORITY (CC, No, Date): US 499844 900327**

**DESIGNATED STATES: DE; FR; GB; IT**

**INTERNATIONAL PATENT CLASS (V7): G06F-015/40;**

**ABSTRACT WORD COUNT: 148**

**LANGUAGE (Publication,Procedural,Application): English; English; English**

**FULLTEXT AVAILABILITY:**

Available Text Language Update Word Count

CLAIMS A (English) EPABF1 1691

SPEC A (English) EPABF1 20259

Total word count - document A 21950

Total word count - document B 0

Total word count - documents A + B 21950

...ABSTRACT functional units: a memory interface and field extractor/assembler, a Predicate Evaluator, a combined sort/ **merge / join** unit, a **hasher** , and a microcoded control processor, are all centered around a partitioned Working Store. Each functional...

...function it performs, and executes its portion of the query efficiently.

All functional units execute **simultaneously** under the control **processor** to achieve the desired results. Many different database functions can be performed by chaining simple operations **together** . The **processor** can effectively replace the CPU bound portions of complex database operations with functions that run at the maximum memory access rate **improving** performance on complex **queries** . (see image in original document)

17/3,K/4 (Item 1 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00893410 \*\*Image available\*\*

**NESTED CONDITIONAL RELATIONS (NCR) MODEL AND ALGEBRA  
MODELE DE RELATIONS CONDITIONNELLES IMBRIQUEES**

Patent Applicant/Assignee:

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designated states except: US)

Patent Applicant/Inventor:

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Legal Representative:

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Seattle, WA 98111-1247, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200227551 A2 20020404 (WO 0227551)

Application: WO 2001US24353 20010801 (PCT/WO US0124353)

Priority Application: US 2000222070 20000801

Designated States:

(Protection type is "patent" unless otherwise stated - for applications  
prior to 2004)

AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ  
EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR  
LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL  
TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW  
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR  
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG  
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW  
(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 21610

Fulltext Availability:

Detailed Description

Detailed Description

... child(phone, \$ph)

Figure 2 represents a JoinIn graph (JIG) for the match expression of

Table 8.

The **Joinhi** graph is a data structure that facilitates the **optimization** of the **query** to be executed against the data store. This JIG indicates that the Departments, Employees, and...

...10 and a construct program 320. A compiler of the data integration engine generates the **execution** program **during** a compilation phase.

The extract program is a series of operations on a data extracted...

17/3,K/5 (Item 2 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

00867315 \*\*Image available\*\*

**SYSTEM AND METHOD FOR A DECISION ENGINE AND ARCHITECTURE FOR  
PROVIDING**

**HIGH-PERFORMANCE DATA QUERYING OPERATIONS  
SYSTEME ET PROCEDE SE RAPPORTANT A UN MOTEUR DECISIONNEL ET A UNE  
ARCHITECTURE ASSURANT DES OPERATIONS DE DEMANDES DE DONNEES DE  
GRANDE  
QUALITE**

Patent Applicant/Assignee:

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JOHNSON Brett A, 9707 Overbrook Road, Leawood, KS 66206-2309, US,

Legal Representative:

GOTTS Lawrence J (et al) (agent), Shaw Pittman, 1650 Tysons Boulevard,  
McLean, VA 22102-4859, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200201418 A2-A3 20020103 (WO 0201418)

Application: WO 2001US20198 20010626 (PCT/WO US2001020198)

Priority Application: US 2000214000 20000626; US 2000221545 20000728; US  
2000240071 20001016; US 2001287013 20010430

Designated States:

(Protection type is "patent" unless otherwise stated - for applications  
prior to 2004)

AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ  
EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS  
LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ  
TM TR TT TZ UA UG UZ VN YU ZA ZW  
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR  
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG  
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW  
(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 20639

Fulltext Availability:

Detailed Description

Detailed Description

... through the other tables using these the results. As known in the art,  
many different **query optimization** algorithms can be applied, but in  
each case, the 'joining " of tables is performed **during the**  
**processing** of each query, resulting in execution time being expended on  
finding corresponding rows in distinct...

...be predicted in advance and the data structures and access code can be  
customized to **improve** performance of those **queries** , even if that  
requires sacrificing performance on other, ad-hoc, queries.

2. Lack Of Trigger...the time the data is added.

That is, the decision engine comprises a plurality **pre- joined tables** wherein the links between tables are formed at provision-time rather than **during the query execution process**.

[00501 The present invention (inverted exclamation mark)S suitable for implementation in any data environment requiring **maximum query** processing speed, and where typical queries are wellknown. For example, the decision,engine may be...

## NonPatent Literature Abstracts

File 8:Ei Compendex(R) 1884-2007/Aug W3  
(c) 2007 Elsevier Eng. Info. Inc.

File 35:Dissertation Abs Online 1861-2007/Jul  
(c) 2007 ProQuest Info&Learning

File 65:Inside Conferences 1993-2007/Aug 28  
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File 2:INSPEC 1898-2007/Aug W3  
(c) 2007 Institution of Electrical Engineers

File 6:NTIS 1964-2007/Aug W4  
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File 144:Pascal 1973-2007/Aug W3  
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File 34:SciSearch(R) Cited Ref Sci 1990-2007/Aug W4  
(c) 2007 The Thomson Corp

File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec  
(c) 2006 The Thomson Corp

File 99:Wilson Appl. Sci & Tech Abs 1983-2007/Jul  
(c) 2007 The HW Wilson Co.

File 266:FEDRIP 2007/Aug  
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File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13  
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File 256:TecInfoSource 82-2007/Feb  
(c) 2007 Info.Sources Inc

File 56:Computer and Information Systems Abstracts 1966-2007/Aug  
(c) 2007 CSA.

File 60:ANTE: Abstracts in New Tech & Engineer 1966-2007/Jul  
(c) 2007 CSA.

Set	Items	Description
S1	31779	JOIN????(2N)(ORDER? ? OR TABLE? ? OR PREDICATE? ? OR SELF? - OR INNER? OR NOTATION? OR EQUI OR THETA OR NATURAL? ? OR CROSS OR CARTESIAN OR OUTER OR METHOD? ? OR HASH? OR MERGE? OR SEQ- UENCE?) OR EQUIJOIN? ?
S2	813	(ALTER? ? OR ALTERATION OR ALTERNAT? OR CHANG??? OR CONVER- T??? OR MODIFY??? OR MODIFICATION? ? OR RECONFIGUR??? OR REC- ONFIGURATION? ? OR REVIS??? OR TRANSFIGUR? OR TRANSFORM? OR U- PDAT? OR UP(DAT???) (3N)S1
S3	10679204	PROCESS??? OR HANDL??? OR IMPLEMENTATION OR EXECUTION
S4	446156	(DURING OR TOGETHER OR SIMULTANEOUS? OR CONCURRENT? OR SAM- E?(TIME OR INSTANT OR MOMENT) OR COINCIDENT? OR COINSTANTAN- EOUS OR WHILE OR MIDST OR THROUGHOUT)(3N)S3
S5	1566580	QUERY??? OR QUERIE? ? OR REQUEST??? OR ASK??? OR INQUIR??? OR REQUISITION? ? OR QUESTION?
S6	36921	S5(3N)(OPTIMI?ATION OR OPTIM?? OR BEST OR MAXIMUM OR GREAT- EST OR BIGGEST OR MAXIMAL OR TOP OR FAVORABLE OR FAVOURABLE OR IMPROV????? OR BOOST? OR ENHANC? OR INCREAS? OR BETTER OR AM- PLIFY?? OR AMPLIFICATION OR INTENSIFY??? OR INTENSIFICATION)
S7	0	S2 AND S4 AND S6
S8	8	S2 AND S4
S9	7	RD (unique items)

S10 5 S9 NOT PY=2003:2007  
S11 7 S2 AND S6  
S12 6 RD (unique items)  
S13 6 S12 NOT S10  
S14 6 S13 NOT PY=2003:2007  
S15 10 S1 AND S4 AND S6  
S16 9 RD (unique items)  
S17 9 S16 NOT (S14 OR S10)  
S18 6 S17 NOT PY=2003:2007

**10/3,K/5 (Item 1 from file: 99)**

DIALOG(R)File 99:Wilson Appl. Sci & Tech Abs  
(c) 2007 The HW Wilson Co. All rts. reserv.

1562413 H.W. WILSON RECORD NUMBER: BAST97053010

**Parallel execution of hash joins in parallel databases**

Hsiao, Hui-I; Chen, Ming-Syan; Yu, Philip S  
IEEE Transactions on Parallel and Distributed Systems v. 8 (Aug. '97) p.  
872-83

DOCUMENT TYPE: Feature Article ISSN: 1045-9219

...ABSTRACT: investigated processor allocation and the use of hash filters to improve the parallel execution of **hash joins**. A scheme to **transform** a bushy execution tree to an allocation tree was devised to exploit the opportunity of...

...a way that inner relations in a pipeline can be made available at approximately the **same time**. The parallel **execution** of hash joins was further improved through the investigation of the hash filtering approach. Simulation...

**14/3,K/1 (Item 1 from file: 35)**

DIALOG(R)File 35:Dissertation Abs Online  
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01160208 ORDER NO: AAD91-15385

**JOIN PROCESSING ON A HYPERCUBE MULTICOMPUTER (PARALLEL ALGORITHMS)**

Author: LIN, EILEEN TIEN

Degree: PH.D.

Year: 1990

Corporate Source/Institution: GEORGIA INSTITUTE OF TECHNOLOGY (0078)

Source: VOLUME 52/01-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

PAGE 346. 186 PAGES

...Hash join algorithm is relatively immune to data skew. We provide the Cube Pessimistic Adaptive- **Hash join** algorithm as an **alternative** that does not require the statistics needed by the Cube Adaptive-Hash join algorithm.

Until...

...each heuristic depends on the characteristics of a query and the use of parallelism in **query optimization** is definitely feasible. We believe that this work provides a framework for parallel **query optimization** and the results can be applied to a more general context.

**14/3,K/2 (Item 2 from file: 35)**

DIALOG(R)File 35:Dissertation Abs Online  
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0991076 ORDER NO: NOT AVAILABLE FROM UNIVERSITY MICROFILMS INT'L.  
**UPDATING DERIVED RELATIONS**

Author: COBURN, NEIL

Degree: PH.D

Year: 1988

Corporate Source/Institution: UNIVERSITY OF WATERLOO (CANADA) (1141)

Source: VOLUME 49/04-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

PAGE 1262.

...be used to structure the internal level, as has been proposed as a means of **improving query** response time. More traditionally, derived relations may be thought of as materialized views or database...

...expression constructed from an arbitrary number of project, select and join operations (but containing no **self - joins** ). The class of **update** operations consists of insertions, deletions, and modifications, where the set of tuples to be deleted...

**14/3,K/3 (Item 3 from file: 35)**

DIALOG(R)File 35:Dissertation Abs Online

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868212 ORDER NO: NOT AVAILABLE FROM UNIVERSITY MICROFILMS INT'L.  
**QUERY OPTIMIZATION IN DISTRIBUTED DATABASE SYSTEMS**

Author: CHEN, ARBEE L. P.

Degree: PH.D.

Year: 1984

Corporate Source/Institution: UNIVERSITY OF SOUTHERN CALIFORNIA (0208)

Source: VOLUME 45/10-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

PAGE 3273.

**QUERY OPTIMIZATION IN DISTRIBUTED DATABASE SYSTEMS**

...to the performance efficiency of a distributed database system. In this thesis, we study the **optimization** of distributed **query** processing.

With the objective of minimizing total data transmission cost, we apply the semi-join...

...clauses in a query and obtain two more optimality properties. Based on these properties, we **revise** the traditional semi-join processing **method** such that the cost for processing a query can be reduced. We also develop four...

...These algorithms can be used to improve the semi-join program generated by any heuristic **query** processing algorithm.

Although **optimal** semi-join programs for general queries are generally infeasible, it may be worthwhile to investigate...

...get an approximate result when an exhaustive search is computationally expensive.

Finally, we study the **query optimization** problem by analyzing the structure of the **query**. **Optimal** algorithms for two other special types of queries are developed. We then discuss the **query optimization** problem by comparing the optimal algorithms for four different types of queries. We also identify...

**14/3,K/4 (Item 1 from file: 2)**

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

06430881 INSPEC Abstract Number: C9701-6160D-004

**Title: Join sequence optimization in parallel query plans**

Author(s): Langer, U.J.; Meyer, H.F.

Author Affiliation: Dept. CS, Rostock Univ., Germany

Conference Title: Proceedings. Seventh International Workshop on Database and Expert Systems Applications p.506-13

Editor(s): Wagner, R.R.; Thoma, H.

Publisher: IEEE Comput. Soc. Press, Los Alamitos, CA, USA

Publication Date: 1996 Country of Publication: USA xiii+521 pp.

ISBN: 0 8186 7662 0 Material Identity Number: XX96-02444

U.S. Copyright Clearance Center Code: 0 8186 7662 0/96/\$05.00

Conference Title: Proceedings of 7th International Conference and Workshop on Database and Expert Systems Applications: DEXA 96

Conference Date: 9-10 Sept. 1996 Conference Location: Zurich, Switzerland

Language: English

Subfile: C

Copyright 1996, IEE

**Title: Join sequence optimization in parallel query plans**

Abstract: We show an alternative way to optimize join sequences in a shared nothing architecture of the distributed relational DBMS HEAD. The hardware resources are...

**14/3,K/5 (Item 2 from file: 2)**

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

05712197 INSPEC Abstract Number: C9409-6160D-002

**Title: A partition method for query optimization on outer join**

Author(s): Heung Seo Koo; Hae Young Bae

Journal: Journal of the Korea Information Science Society vol.21, no.5 p.931-43

Publication Date: May 1994 Country of Publication: South Korea

CODEN: HJKHDC ISSN: 0258-9125

Language: Korean

Subfile: C

**Title: A partition method for query optimization on outer join**

Abstract: Improving a query by changing the order of inner join operator application is one of the most efficient optimization strategies. The size of intermediate results may vary greatly among the alternative join orders. However, outer joins, the new operator in ISO/IEC SQL-92, affect the semantics of its queries according...

... query optimizer does not have free choice among outer join orderings. This paper presents a query optimization strategy for outer join. The proposed method, called the partition method, enables a query optimizer...

...Identifiers: query optimization ;

**14/3,K/6 (Item 3 from file: 2)**

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

04441437 INSPEC Abstract Number: C89056836

**Title: Extensive query processing in Starburst**

Author(s): Haas, L.M.; Freytag, J.C.; Lohman, G.M.; Pirahesh, H.

Author Affiliation: IBM Almaden Res. Center, San Jose, CA, USA

Journal: SIGMOD Record vol.18, no.2 p.377-88

Publication Date: June 1989 Country of Publication: USA

CODEN: SRECD8 ISSN: 0163-5808

Conference Title: 1989 ACM SIGMOD International Conference on Management of Data

Conference Sponsor: ACM

Conference Date: 31 May-2 June 1989 Conference Location: Portland, OR, USA

Language: English

Subfile: C

...Abstract: extensions (e.g. new access and storage methods) and internal processing extensions (e.g new join methods and new query transformations ). To support these features, the database query language processor must be very powerful and highly extensible. Starburst's language processor features a powerful query language, rule-based optimization and query rewrite, and an execution systems based on an extended relational algebra. The authors describe the...

**18/3,K/1 (Item 1 from file: 35)**

DIALOG(R)File 35:Dissertation Abs Online

(c) 2007 ProQuest Info&Learning. All rts. reserv.

01779226 ORDER NO: AADAA-I9991510

**Algorithms and optimization techniques for complex spatial queries**

Author: Mamoulis, Nikolaos

Degree: Ph.D.

Year: 2000

Corporate Source/Institution: Hong Kong University of Science and Technology (People's Republic of China) (1223)

Source: VOLUME 61/10-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

PAGE 5451. 216 PAGES

ISBN: 0-599-98925-4

Spatial databases extend conventional databases to support multidimensional data. Although a number of spatial access methods and spatial join algorithms have been proposed, the efficient processing of complex spatial queries that join more than...

...is the proposal of *Slot Index Spatial Join* (SISJ), a very efficient spatial join method . SISJ matches two datasets, only one of which is indexed by an R-tree. It is based on the hash - join paradigm and utilizes the existing R-tree to determine the partition buckets. The advantages of...

...multiway spatial joins, i.e. queries that match more than two spatial datasets. We provide query optimization algorithms and selectivity/cost estimation formulae. We also propose *Synchronous Traversal*

(ST), a...

...indefinite queries is studied.

Our final contribution is the extension of spatial join algorithms to process joins and selections simultaneously. We show that these hybrid methods are superior to combinations of simple selection and join operators. We also study the optimization of complex spatial queries by providing and evaluating selectivity estimation formulae for join queries that include selections.

**18/3,K/2 (Item 2 from file: 35)**

DIALOG(R)File 35:Dissertation Abs Online  
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01295680 ORDER NO: AAD93-16548

**DOME: DYNAMIC OPTIMIZATION ON MULTIPROCESSOR ENGINES, A STATISTICAL APPROACH (OPTIMIZATION, MULTIPROCESSOR)**

Author: BARLOS, FOTIOS N.

Degree: PH.D.

Year: 1993

Corporate Source/Institution: GEORGE MASON UNIVERSITY (0883)

Source: VOLUME 54/02-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

PAGE 930. 192 PAGES

...are highly skewed since characterizing the expected workload can introduce significant overhead. We develop a **query optimization** approach, named Dynamic Optimization on Multiprocessor Engines (DOME), that uses a dynamic sampling methodology to...

...frequency distribution along each level of the query tree. DOME covers the three main multiprocessor **query optimization** areas of Workload Partitioning, Site Selection, and Operation Ordering.

The DOME optimizer samples the input...

...algorithms yields an order of magnitude factor improvement over prior approaches for highly skewed data **during Project- Join execution sequences**. The Site Selection algorithms provide approximately a six fold factor improvement over a static allocation...

**18/3,K/3 (Item 3 from file: 35)**

DIALOG(R)File 35:Dissertation Abs Online  
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927110 ORDER NO: AAD86-18657

**DISTRIBUTED QUERY PROCESSING TECHNIQUES BASED ON PIPELINING AND DATA SHARING IN AN INTEGRATED DATA NETWORK (OPTIMIZATION, FIFTH-GENERATION, DATABASE MACHINES, PETRI-NET)**

Author: MIKKILINENI, KRISHNA PRASAD

Degree: PH.D.

Year: 1986

Corporate Source/Institution: THE UNIVERSITY OF FLORIDA (0070)

Source: VOLUME 47/05-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

PAGE 2100. 204 PAGES

...this work, we develop an IDN architecture based on two key parallel processing techniques which **improve** the database **query** throughput. These are (1) pipelined and data-flow execution of database operations, and (2) intermediate...

...for optimizing the pipelined query processing in the IDN environment. To evaluate the alternative query **execution** schedules **during** the optimization **process**, detailed cost formulas for computing the cost of pipelined, distributed execution of relational queries are...

...asynchronous method of query pipeline control, (3) the intermediate result sharing technique, and (4) the **hash**-based **join** algorithms. To validate the results of the analytical study and to obtain a more accurate

...

**18/3,K/4 (Item 4 from file: 35)**

DIALOG(R)File 35:Dissertation Abs Online  
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744250 ORDER NO: AAD81-08563

**QUERY OPTIMIZATION FOR RELATIONAL DATABASE SYSTEMS**

Author: KIM, WON

Degree: PH.D.

Year: 1980

Corporate Source/Institution: UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN  
(0090)

Source: VOLUME 41/11-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

PAGE 4184. 161 PAGES

**QUERY OPTIMIZATION FOR RELATIONAL DATABASE SYSTEMS**

This report develops a new algorithm for computing the **Cartesian** product and **join** of large relations which attempts to take maximum advantage of available main-memory buffer space...

...of queries embedded in some algorithmic programming language to determine those queries that can be **simultaneously processed**.

Finally, this report identifies the essential functional components of a database machine that can support...

**18/3,K/5 (Item 1 from file: 6)**

DIALOG(R)File 6:NTIS  
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1470968 NTIS Accession Number: N89-29079/5

**Application of Constraints in Query Optimization**

Vankuijk, H. J. A.

Technische Univ. Twente, Enschede (Netherlands). Dept. of Computer Science.

Corp. Source Codes: 090700004; U1294434

Sponsor: National Aeronautics and Space Administration, Washington, DC.

Report No.: MEMO-INF-88-55

1988 84p

Languages: English

Journal Announcement: GRAI9002; STAR2723

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NTIS Prices: PC A05/MF A01

**Application of Constraints in Query Optimization**

... of a framework unifying the solution to a number of existing and new problems encountered **during** the overall **process** of (semantic) **query optimization** in (distributed) database systems. Domain constraints, attribute constraints, and tuple constraints are applied to explicitly...

... The context of the theory presented is found in the knowledge-based approach to semantic **query optimization** in a distributed environment and the explicit representation of **query optimization** knowledge of various sources so that it can be managed (added, deleted, modified). Constraints are...

...knowledge (including the so-called if-then rules known from literature), to augment selection and **join predicate** formulas to arrive at more efficient schedules for these operations, to define and apply horizontal...

Descriptors: \*Constraints; \*Distributed processing; \* Optimization ; \* **Query languages** ; \*Semantics; Communication theory; Computer systems design; Computer systems performance; Data base management systems; Operating...

**18/3,K/6 (Item 1 from file: 34)**

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

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02258446 Genuine Article#: KN982 No. References: 9

**Title: COUNTER REDUCTION TECHNIQUE FOR COMBINED PROCESSING OF SELECTION AND**

**JOIN**

Author(s): TOYAMA M

Corporate Source: KEIO UNIV,DEPT ADM ENGN,3-14-1 HIYOSHI/YOKOHAMA/KANAGAWA  
223/JAPAN/

Journal: INFORMATION SYSTEMS, 1993, V18, N1 (JAN), P23-35

ISSN: 0306-4379

Language: ENGLISH Document Type: ARTICLE (Abstract Available)

...Abstract: operands. The counter reduction technique reduces the size of both the join operands before or **during** the join **processing** even if the selection is specified on only one operand. The trick can be used

...

...reduction can be applied to an important class of joins called key joins. A key **join** is a **natural join** between the primary key of one operand and a part of the primary key of...

...Research Fronts: DATA ACCESS; ADAPTIVE HASHING; LINEAR OCTREE; GEOGRAPHIC INFORMATION-SYSTEMS; DIGITAL TRIES)

91-6811 001 (DISTRIBUTED **QUERY OPTIMIZATION** ; RELATIONAL ALGEBRA)

91-8233 001 (DISTRIBUTED RELATIONAL DATABASE; APPROXIMATING BLOCK ACSESSES IN RANDOM FILES; PARALLEL...

## NonPatent Literature Fulltext

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Set Items Description

S1 70026 JOIN???(2N)(ORDER? ? OR TABLE? ? OR PREDICATE? ? OR SELF? -  
OR INNER? OR NOTATION? OR EQUI OR THETA OR NATURAL? ? OR CROSS  
OR CARTESIAN OR OUTER OR METHOD? ? OR HASH? OR MERGE? OR SEQ-

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PDAT? OR UP(DAT???) (3N)S1  
S3 15010339 PROCESS??? OR HANDL??? OR IMPLEMENTATION OR EXECUTION  
S4 726520 (DURING OR TOGETHER OR SIMULTANEOUS? OR CONCURRENT? OR SAM-  
E() (TIME OR INSTANT OR MOMENT) OR COINCIDENT?? OR COINSTANTAN-  
EOUS OR WHILE OR MIDST OR THROUGHOUT) (3N)S3  
S5 10736364 QUERY??? OR QUERIE? ? OR REQUEST??? OR ASK??? OR INQUIR???  
OR REQUISITION? ? OR QUESTION?  
S6 284069 S5(3N)(OPTIMI?ATION OR OPTIM?? OR BEST OR MAXIMUM OR GREAT-  
EST OR BIGGEST OR MAXIMAL OR TOP OR FAVORABLE OR FAVOURABLE OR  
IMPROV????? OR BOOST? OR ENHANC? OR INCREAS? OR BETTER OR AM-  
PLIFY??? OR AMPLIFICATION OR INTENSIFY??? OR INTENSIFICATION)  
S7 0 S2(100N)S4(100N)S6  
S8 28 S2(25N)S4  
S9 10 RD (unique items)  
S10 3 S9 NOT PY=2003:2007  
S11 0 S2(25N)S6  
S12 13 S2(100N)S6  
S13 8 RD (unique items)  
S14 8 S13 NOT S10  
S15 8 S14 NOT PY=2003:2007  
S16 0 S1(25N)S4(25N)S6  
S17 13 S1(100N)S4(100N)S6  
S18 9 RD (unique items)  
S19 9 S18 NOT (S15 OR S10)  
S20 9 S19 NOT PY=2003:2007

**15/3,K/1 (Item 1 from file: 275)**

DIALOG(R)File 275:Gale Group Computer DB(TM)

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01551701 SUPPLIER NUMBER: 13074899 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Microsoft makes its move. (Access and FoxPro 2.5 data base management systems) (Desktop Developer)(Tutorial) (Column)**

Frank, Maurice

DBMS, v5, n13, p68(7)

Dec, 1992

DOCUMENT TYPE: Column ISSN: 1041-5173 LANGUAGE: ENGLISH

RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 6406 LINE COUNT: 00509

... end.

Queries

The Access Graphical Query By Example (QBE) windows display table objects along the **top** with **query** columns below. Access prompts for one or more tables or queries when the query is...

...fields from the table to the query column area. A drop-down list presents another **alternative**. You **join** **tables** by dragging the linking field from one table to its counter-part in the related...

**15/3,K/3 (Item 1 from file: 621)**

DIALOG(R)File 621:Gale Group New Prod.Annou.(R)

(c) 2007 The Gale Group. All rts. reserv.

01301283 Supplier Number: 45784486 (USE FORMAT 007 FOR FULLTEXT)

**MICROSOFT INTRODUCES VISUAL BASIC VERSION 4.0; THE FAST AND EASY WAY TO CREATE 32-BIT OLE-BASED APPLICATIONS**

PR Newswire, p912SE006

Sept 12, 1995

Language: English Record Type: Fulltext

Document Type: Newswire; Trade

Word Count: 2359

... developers

everything they need to keep data across many databases synchronized.

- Rushmore technology. Rushmore(TM) **query** technology greatly **improves** the speed of many queries on Indexed Sequential Access Method (ISAM) local databases -- such as...

...tables.

- Referential integrity. Programmers now have programmatic access to referential integrity provided by Jet.

- Cascading **updates** and deletes. When **tables** are **joined**, **updates** to the "one" side of the join are cascaded throughout the

"many" side of the...

**15/3,K/6 (Item 1 from file: 635)**  
DIALOG(R)File 635:Business Dateline(R)  
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0137471 90-20230

**ShareBase First to Pass ANSI SQL Validation; New Software Includes Advanced Query Optimizer**  
Humphrey, Scott; Sullivan, Joan  
Business Wire (San Francisco, CA, US) s1 p1  
PUBL DATE: 900426  
WORD COUNT: 956  
DATELINE: Los Gatos, CA, US

TEXT:

...and generates the corresponding plan, while the SQL executor executes the plan. The ShareBase III query processor enhances the performance of the Server/8000 in a number of ways:

-- Improved Searching Techniques: ShareBase...

...searching for the optimal strategy. Most optimizers are capable of looking at only a few alternate join orders, hence when a query contains more than a small number of joins, the quality of...

**15/3,K/7 (Item 1 from file: 810)**  
DIALOG(R)File 810:Business Wire  
(c) 1999 Business Wire . All rts. reserv.

0173263 BW102

**SHAREBASE: ShareBase first to pass ANSI SQL validation; new software includes advanced query optimizer**

April 26, 1990

Byline: Business Editors/Computer Writers

...and generates the corresponding plan, while the SQL executor executes the plan. The ShareBase III query processor enhances the performance of the Server/8000 in a number of ways:

-- Improved Searching Techniques: ShareBase...

...searching for the optimal strategy. Most optimizers are capable of looking at only a few alternate join orders, hence when a query contains more than a small number of joins, the quality of...

**15/3,K/8 (Item 1 from file: 16)**  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2007 The Gale Group. All rts. reserv.

03985034 Supplier Number: 45785154 (USE FORMAT 7 FOR FULLTEXT)

**MICROSOFT: Microsoft introduces Visual Basic 4.0**

M2 Presswire, pN/A

Sept 13, 1995

Language: English Record Type: Fulltext

Document Type: Newswire; Trade

Word Count: 2413

... giving developers everything they need to keep data across many databases synchronized.

\* Rushmore Technology. Rushmore **query optimization** technology greatly **improves** the speed of many queries on ISAM (Local databases such

as Microsoft Fox and Microsoft...

...tables.

\* Referential Integrity. Programmers now have programmatic access to referential integrity provided by Jet.

\* Cascading **Updates** And Deletes. When **tables** are **joined**, **updates** to the "one" side of the join are cascaded throughout the "many" side of the...

**20/3,K/2 (Item 2 from file: 275)**

DIALOG(R)File 275:Gale Group Computer DB(TM)

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01712862 SUPPLIER NUMBER: 16434238 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**A different model for databases. (Online Analytical Processing)**

Dorrian, Jim

EXE, v9, n2, p64(3)

July, 1994

ISSN: 0268-6872 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 2617 LINE COUNT: 00214

... If the database is broken up into smaller tables then performance suffers because of complicated **table joins**. If users combine tables into a denormalised table then they must deal with extremely large...

...CPUs (and machines) to scan a database simultaneously. The results are then merged and sorted **together**.

While **parallel processing** can be used to speedup certain types of queries (eg queries that scan an entire...

...other types of queries which cannot be broken up into parallel processes. For example, parallel **query** options do not **improve** performance when searching for specific ranges of data. Parallel query options require very expensive symmetrical...

...cannot reference other rows in the table nor can they reference other tables unless the **tables** are first **joined** in a view. These limitations are intrinsic in the relational model because it only works...

**20/3,K/3 (Item 3 from file: 275)**

DIALOG(R)File 275:Gale Group Computer DB(TM)

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01521909 SUPPLIER NUMBER: 12353479 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Parallel database systems: the future of high performance database systems.**

(Technical)

DeWitt, David; Gray, Jim

Communications of the ACM, v35, n6, p85(14)

June, 1992

DOCUMENT TYPE: Technical ISSN: 0001-0782 LANGUAGE: ENGLISH

RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 10200 LINE COUNT: 00840

... bad, then there will be little variance in the hash bucket size. In these cases **hash - join** is a linear-time join algorithm with linear speedup and scaleup. Many optimizations of the parallel **hash - join** algorithm have been discovered over the last decade. In pathological skew cases, when many or...

...all the tuples. In these cases no algorithm is known to speedup or scaleup.

The **hash - join** example shows that new parallel algorithms can improve the performance of relational operators. This is...

...Interface Processors (IFPs) and Access Module Processors (AMPs). The IFPs handle communication with the host, **query** parsing and **optimization**, and coordination of AMPs **during query execution**. The AMPs are responsible for executing queries. Each AMP typically has several disks and a...

**20/3,K/5 (Item 2 from file: 621)**

DIALOG(R)File 621:Gale Group New Prod.Annou.(R)

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01155452 Supplier Number: 41871132 (USE FORMAT 007 FOR FULLTEXT)

**Precision to unveil new version of Superbase (R) 4 Windows (TM) and new**

**Superbase SQL Library at Windows & OS/2 Show**

News Release, p1

Feb 18, 1991

Language: English Record Type: Fulltext

Document Type: Magazine/Journal; Trade

Word Count: 965

... A new Query Optimization facility has been provided for improved execution of complex multi-table **queries**. The **optimization** results in

significant performance **increases** over non-optimized **queries** and reports, and includes a comprehensive **Outer Join** capability.

\* New image-handling features result in better fidelity and greater flexibility. These include support...

...edit controls and icons. Version 1.3 also provides triggers for both pre- and post- **processing** **during** data entry.

Version 1.3 is being treated as an upgrade rather than an update to...

**20/3,K/6 (Item 1 from file: 15)**

DIALOG(R)File 15:ABI/Inform(R)

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01035935 96-85328

**Data delivery**

White, Colin

Network World v12n20 PP: 39-42 May 15, 1995

ISSN: 0887-7661 JRNL CODE: NWW

WORD COUNT: 2775

...TEXT: query processing or parallel transaction processing. Parallel query processing is beneficial for decision-support applications, **while** parallel transaction **processing** boosts the performance of OLTP applications.

The objective of parallel processing in decision support is to **improve** **query** response time. With parallel query processing, each query is decomposed by the DBMS server into...

...from external storage, however. Complex queries will involve such activities as accessing data from multiple **tables**, **joining** that data together and sorting it. The more these operational tasks can be done in...

**20/3,K/7 (Item 2 from file: 15)**

DIALOG(R)File 15:ABI/Inform(R)

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00616926 92-32028

**Parallel Database Systems: The Future of High Performance Database Systems**

DeWitt, David; Gray, Jim

Communications of the ACM v35n6 PP: 85-98 Jun 1992

ISSN: 0001-0782 JRNL CODE: ACM

WORD COUNT: 9579

...TEXT: bad, then there will be little variance in the hash bucket size. In these cases **hash - join** is a linear-time join algorithm with linear speedup and scaleup. Many optimizations of the parallel **hash - join** algorithm have been discovered over the last decade. In pathological skew cases, when many or...

...all the tuples. In these cases no algorithm is known to speedup or scaleup.

The **hash - join** example shows that new parallel algorithms can improve the performance of relational operators. This is...

...Interface Processors (IFPs) and Access Module Processors (AMPs). The IFPs handle communication with the host, **query** parsing and **optimization**, and coordination of AMPs **during** **query** **execution**. The AMPs are responsible for executing queries. Each AMP typically has several disks and a...